

WHAT IS CLAIMED IS:

- 1                   1.       A method for identifying a compound that modulates T  
2 lymphocyte activation, the method comprising the steps of:  
3                   (i) contacting the compound with a TRAC1 polypeptide or a fragment  
4 thereof, the polypeptide or fragment thereof encoded by a nucleic acid that hybridizes  
5 under stringent conditions to a nucleic acid encoding a polypeptide having an amino acid  
6 sequence of SEQ ID NO:1; and  
7                   (ii) determining the functional effect of the compound upon the TRAC1  
8 polypeptide.
- 1                   2.       The method of claim 1, wherein the functional effect is measured  
2 *in vitro*.
- 1                   3.       The method of claim 2, wherein the functional effect is a physical  
2 effect.
- 1                   4.       The method of claim 2, wherein the functional effect is a chemical  
2 effect.
- 1                   5.       The method of claim 4, wherein the functional effect is determined  
2 by measuring ligase activity.
- 1                   6.       The method of claim 1, wherein the polypeptide is expressed in a  
2 host cell.
- 1                   7.       The method of claim 6, wherein the functional effect is a physical  
2 effect.
- 1                   8.       The method of claim 6, wherein the functional effect is a chemical  
2 or phenotypic effect.
- 1                   9.       The method of claim 6, wherein the host cell is primary T  
2 lymphocyte.
- 1                   10.      The method of claim 6, wherein the host cell is a cultured T cell.
- 1                   11.      The method of claim 10, wherein the host cell is a Jurkat cell.

1                   12.     The method of claim 6, wherein the chemical or phenotypic effect  
2 is determined by measuring CD69 expression, intracellular  $\text{Ca}^{2+}$  mobilization,  $\text{Ca}^{2+}$   
3 influx, ligase activity, or lymphocyte proliferation.

1                   13.     The method of claim 1, wherein modulation is inhibition of T  
2 lymphocyte activation.

1                   14.     The method of claim 1, wherein the polypeptide is recombinant.

1                   15.     The method of claim 1, wherein the TRAC1 polypeptide comprises  
2 an amino acid sequence of SEQ ID NO:1.

1                   16.     The method of claim 1, wherein the TRAC1 polypeptide is  
2 encoded by a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2.

1                   17.     The method of claim 1, wherein the compound is an antibody.

1                   18.     The method of claim 1, wherein the compound is an antisense  
2 molecule.

1                   19.     The method of claim 1, wherein the compound is a small organic  
2 molecule.

1                   20.     The method of claim 1, wherein the compound is a peptide

1                   21.     The method of claim 20, wherein the peptide is circular.

1                   22.     A method for identifying a compound that modulates T  
2 lymphocyte activation, the method comprising the steps of:

3                   (i) contacting a T cell comprising a TRAC1 polypeptide or fragment  
4 thereof with the compound, the TRAC1 polypeptide or fragment thereof encoded by a  
5 nucleic acid that hybridizes under stringent conditions to a nucleic acid encoding a  
6 polypeptide having an amino acid sequence of SEQ ID NO:1; and

7                   (ii) determining the chemical or phenotypic effect of the compound upon  
8 the cell comprising the TRAC1 polypeptide or fragment thereof, thereby identifying a  
9 compound that modulates T lymphocyte activation.

1                   23.     A method for identifying a compound that modulates T  
2 lymphocyte activation, the method comprising the steps of:

3                   (i) contacting the compound with a TRAC1 polypeptide or a fragment  
4 thereof, the TRAC1 polypeptide or fragment thereof encoded by a nucleic acid that  
5 hybridizes under stringent conditions to a nucleic acid encoding a polypeptide having an  
6 amino acid sequence of SEQ ID NO:1;

7                   (ii) determining the physical effect of the compound upon the TRAC1  
8 polypeptide; and

9                   (iii) determining the chemical or phenotypic effect of the compound upon  
10 a cell comprising the TRAC1 polypeptide or fragment thereof, thereby identifying a  
11 compound that modulates T lymphocyte activation.

1                   24.     A method for identifying a compound capable of interfering with  
2 binding of an TRAC1 polypeptide or fragment thereof, the method comprising the steps  
3 of:

4                   (i) combining an TRAC1 polypeptide or fragment thereof with an E2  
5 ubiquitin-conjugating enzyme polypeptide and the compound, wherein the TRAC1  
6 polypeptide or fragment thereof is encoded by a nucleic acid that hybridizes under  
7 stringent conditions to a nucleic acid encoding a polypeptide having an amino acid  
8 sequence of SEQ ID NO:2; and

9                   (ii) determining the binding of the TRAC1 polypeptide or fragment thereof  
10 to the E2 ubiquitin-conjugating enzyme polypeptide.

1                   25.     The method of claim 24, wherein the TRAC1 polypeptide or  
2 fragment thereof has ligase activity.

1                   26.     The method of claim 24, wherein the E2 ubiquitin-conjugating  
2 enzyme polypeptide is selected from the group consisting of Ubc5, Ubc7, and Ubc8.

1                   27.     The method of claim 24, wherein the TRAC1 polypeptide or  
2 fragment thereof and the E2 ubiquitin-conjugating enzyme polypeptide are combined  
3 first.

1                   28.     The method of claim 24, wherein the reaction is performed *in vitro*.

1                   29.    The method of claim 24, wherein the TRAC1 polypeptide or  
2   fragment thereof and the E2 ubiquitin-conjugating enzyme polypeptide are expressed in a  
3   cell.

1                   30.    The method of claim 29, wherein the cell is a yeast cell.

1                   31.    The method of claim 30, wherein the TRAC1 polypeptide or  
2   fragment thereof is fused to a heterologous polypeptide.

1                   32.    The method of claim 24, wherein the binding of the TRAC1  
2   polypeptide or fragment thereof to the E2 ubiquitin-conjugating enzyme polypeptide is  
3   determined by measuring reporter gene expression.

1                   33.    An isolated complex comprising a TRAC1 polypeptide or fragment  
2   thereof bound to an E2 ubiquitin-conjugating enzyme polypeptide, wherein the TRAC1  
3   polypeptide or fragment thereof is encoded by a nucleic acid that hybridizes under  
4   stringent conditions to a nucleic acid encoding a polypeptide having an amino acid  
5   sequence of SEQ ID NO:2.

1                   34.    The complex of claim 33, wherein the E2 ubiquitin-conjugating  
2   enzyme polypeptide is selected from the group consisting of Ubc5, Ubc7, and Ubc8.

1                   35.    A method of modulating T lymphocyte activation in a subject, the  
2   method comprising the step of administering to the subject a therapeutically effective  
3   amount of a compound identified using the method of claim 1.

1                   36.    The method of claim 35, wherein the subject is a human.

1                   37.    The method of claim 35, wherein the compound is an antibody.

1                   38.    The method of claim 35, wherein the compound is an antisense  
2   molecule.

1                   39.    The method of claim 35, wherein the compound is a small organic  
2   molecule.

1                   40.    The method of claim 35, wherein the compound is a peptide.

- 1                   41.     The method of claim 40, wherein the peptide is circular.
- 1                   42.     The method of claim 35, wherein the compound inhibits T  
2 lymphocyte activation.
- 1                   43.     A method of modulating T lymphocyte activation in a subject, the  
2 method comprising the step of administering to the subject a therapeutically effective  
3 amount of a TRAC1 polypeptide, the polypeptide encoded by a nucleic acid that  
4 hybridizes under stringent conditions to a nucleic acid encoding a polypeptide having an  
5 amino acid sequence of SEQ ID NO:1.
- 1                   44.     The method of claim 43, wherein the TRAC1 polypeptide  
2 comprises an amino acid sequence of SEQ ID NO:1.
- 1                   45.     A method of modulating T lymphocyte activation in a subject, the  
2 method comprising the step of administering to the subject a therapeutically effective  
3 amount of a nucleic acid encoding a TRAC1 polypeptide, wherein the nucleic acid  
4 hybridizes under stringent conditions to a nucleic acid encoding a polypeptide having an  
5 amino acid sequence of SEQ ID NO:1.
- 1                   46.     The method of claim 45, wherein the TRAC1 nucleic acid  
2 comprises a nucleotide sequence of SEQ ID NO:2.